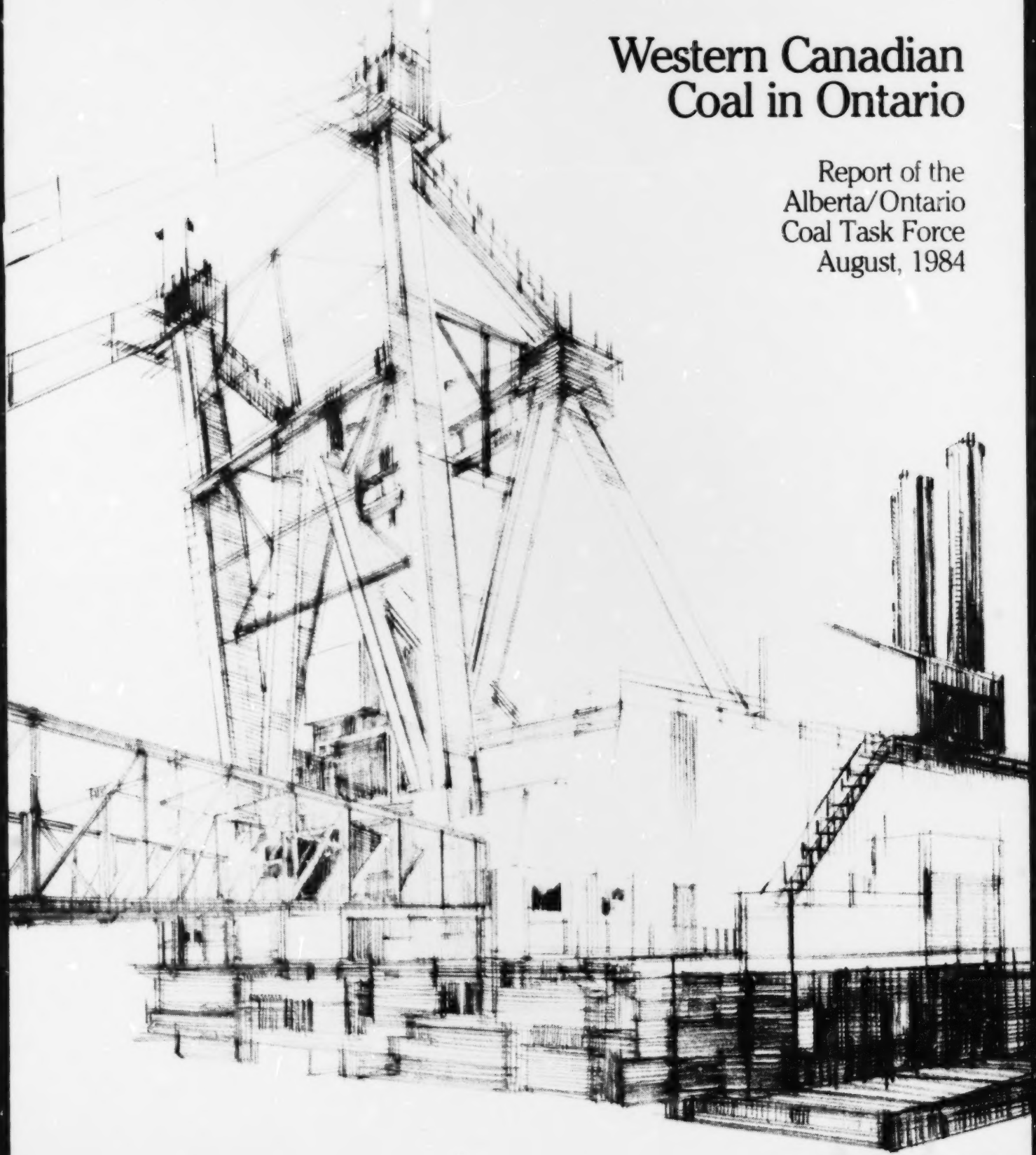
Western Canadian Coal in Ontario

Report of the
Alberta/Ontario
Coal Task Force
August, 1984



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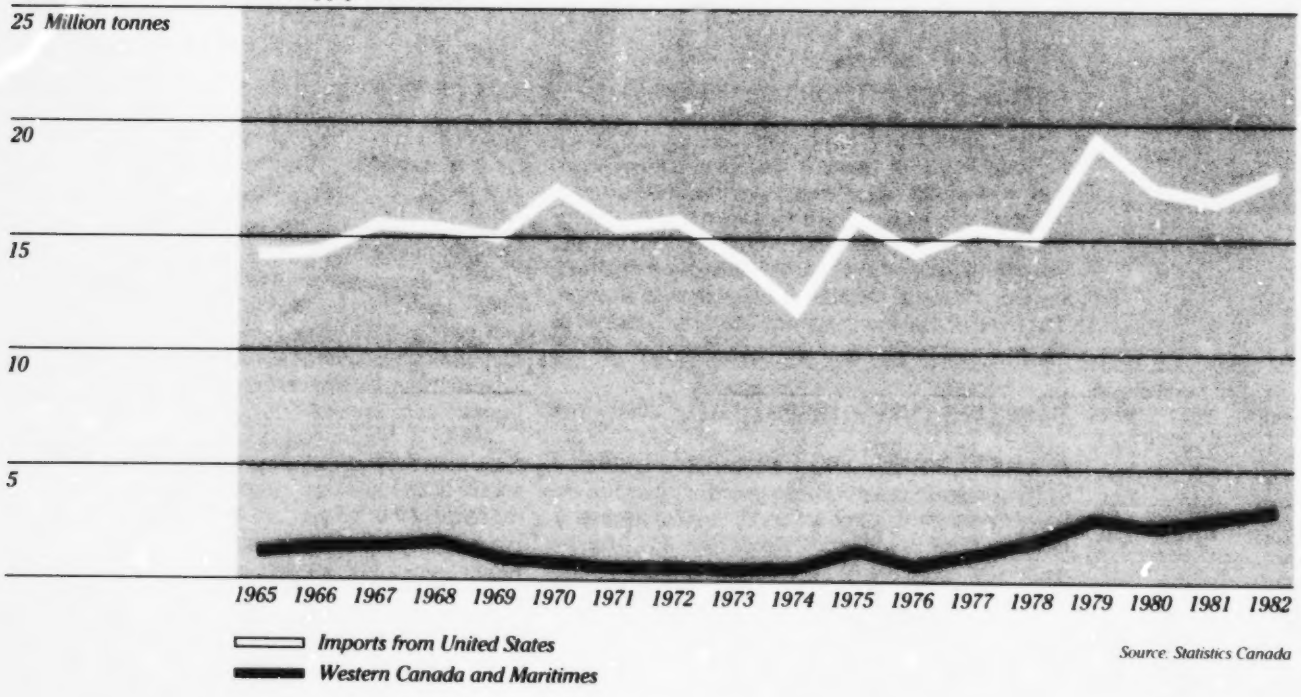
Introduction

In early 1984, the Alberta Minister of Energy and Natural Resources and the Ontario Minister of Energy asked their senior officials to form a task force to look into the costs and benefits of increasing sales of Alberta coal in Ontario's utility and industrial market. Prior to this time, Alberta thermal coal had been contracted by Ontario Hydro, with sales of approximately 1.4 million tonnes in 1983. An additional 90 thousand tonnes per year of western Canadian coal was used by pulp and paper plants in northwestern Ontario. Ontario steel companies have taken spot shipments of Alberta metallurgical coal from time to time, although these sales have been infrequent in the last few years. The bulk of Ontario's coal requirement continues to be supplied by mines in the eastern United States, which have held a distinct cost advantage over western Canadian coals, primarily due to much shorter transportation distances. A summary of coal supply to Ontario is shown in *Figure 1*.

Recent interest in Alberta coal can be traced, in part, to an increasing awareness of acid rain problems caused by burning higher sulphur U.S. coals in Ontario power stations and industrial facilities and to an increased demand for electricity produced by coal-fired generation stations in Ontario. Alberta coals are lower in sulphur than U.S. counterparts, and large, easily minable reserves are available for both export and domestic markets. Consequently, it was agreed that a review of the potential for increasing sales of Alberta coal in Ontario was timely.

Figure 1 ***Coal Supply in Ontario***



Source: Statistics Canada

Task Force Activities

The Alberta/Ontario Task Force consists of officials from Alberta Energy and Natural Resources, Alberta Economic Development and the Ontario Ministry of Energy. The Task Force examined three potential coal markets: the power utilities, the steel producers and general industrial users, most notably the cement and pulp and paper industries. Potential residential, chemical or transport uses of coal were not considered sufficient to warrant detailed examination. The Task Force also investigated elements of the transportation cost.

The Task Force, in part or in whole, has met with various coal producers and potential customer interests, including:

- The Coal Association of Canada
  McIntyre Mines Ltd.
  Union Oil Ltd.
  Luscar Ltd.
  Manalta Coal Ltd.
  Ontario Hydro
  Stelco Ltd.
  Dofasco Ltd.
  Portland Cement Association
  Abitibi Pulp and Paper
  General Motors Ltd.
  Ontario Ministry of Transport
  Federal Industries, operator of
  Thunder Bay Terminal

The assistance received from all those who met with the Task Force is greatly appreciated.

In addition, the Task Force reviewed several reports on the potential for expanded coal use by Ontario industry *(see Bibliography)*.

Market Potential

Ontario is a significant coal consumer, accounting for roughly half of Canada's total consumption. However, coal is fulfilling a decreasing role in Ontario's energy supplies. In 1965, coal provided approximately 22 per cent of Ontario's energy requirements; by 1982 this had fallen to 16 per cent (the bulk of which is imported from the U.S. for use in Ontario Hydro generating stations). The trend of coal use in various sectors is illustrated in *Figure 2*.

Electricity Generation

Electricity Demand and Generating Capacity

The current Ontario Hydro generating facilities are based on electrical power demand forecasts prepared in the early 1970s, at which time rapid growth in power demand was expected. As summarized in *Table 1*, total generation capacity in 1983 was 22.1 million kW of which 25 per cent is nuclear, 29 per cent is hydroelectric and 46 per cent is fossil fuelled, primarily coal. Nuclear generation facilities currently under construction will add a further 8.2 million kW of nuclear capacity by 1992, increasing capacity to 44 per cent of the total. Other than the Atikokan generating station near Thunder Bay, which is designed to burn Saskatchewan lignite, no new coal-fired generating stations are planned.

Current electrical demand *(Table 1)* is significantly below that projected in the early 1970s resulting in considerable surplus generating capacity. Because of the lower fueling costs of both nuclear and hydroelectric facilities, Ontario Hydro's strategy is to minimize power generation costs by utilizing both nuclear and hydroelectric generation stations to provide base loads and by using the coal-fired thermal generating stations to meet swing demand and other unexpected increases in load growth. Consequently, of the 110 billion kW·h of electricity generated in 1983, 35 per cent was from nuclear, 33 per cent was from hydroelectric and 32 per cent was from coal.

Coal Requirements

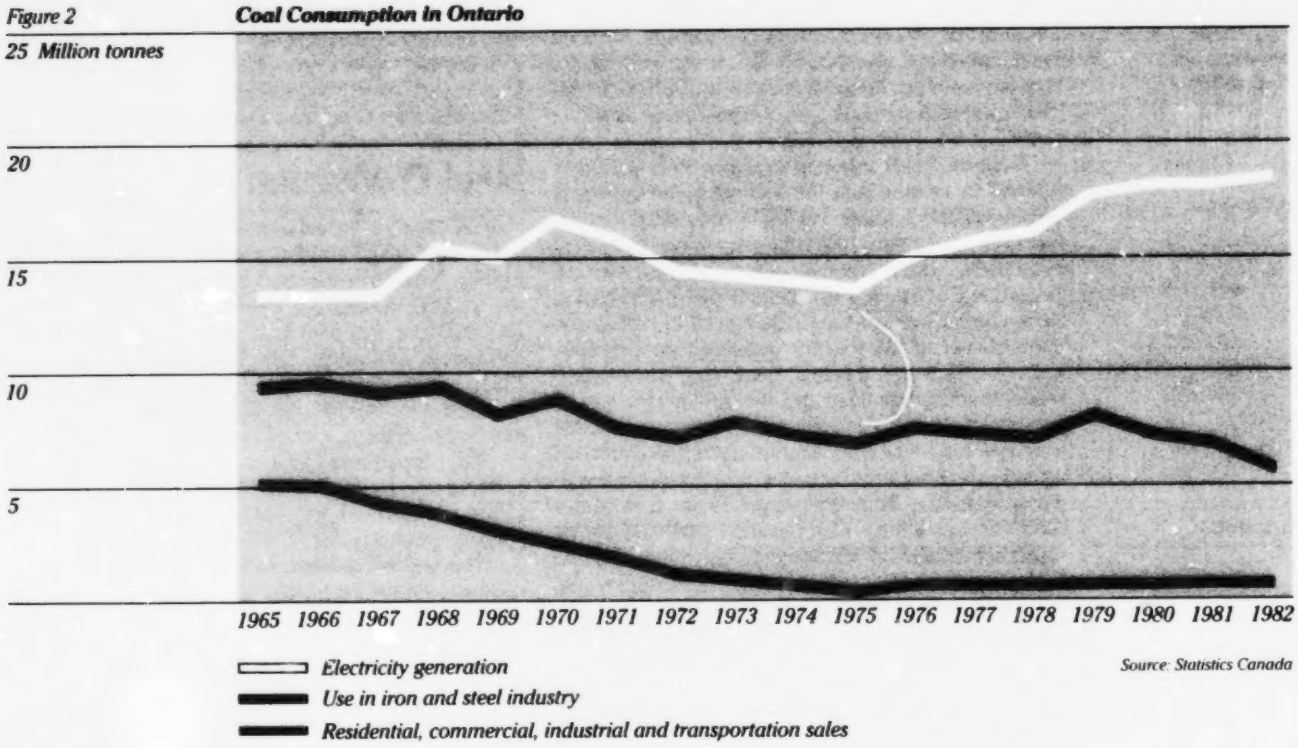
With the rise in energy prices in the 1970s, Ontario Hydro began to move away from the use of oil and natural gas for generating electricity and, in 1983, closed its oil-fired facilities. Coal, on the other hand, has continued to be an important source of energy for thermal generating stations in Ontario.

Ontario Hydro coal supplies have traditionally come from the eastern United States in the form of high-volatile bituminous thermal coal with sulphur content in the range of 2 to 2.5 per cent. In the mid-1970s Ontario Hydro decided to diversify its sources of supply and to secure low-sulphur coal supplies. As one option, it considered the purchase of coal from western Canada, a domestic source of supply.

Three significant difficulties were identified. First, western Canadian coal was not totally compatible with the technical requirements of the existing thermal generating stations. Second, the infrastructure required to transport signficant volumes of coal from western Canada to southern Ontario did not exist. Third, delivered western Canadian coal would cost 40 to 50 per cent more than U.S. coal.

On balance, Ontario Hydro determined that up to 25 per cent of its coal requirements should be sourced in western Canada and, toward this end, made significant investments in coal-blending facilities at the Nanticoke Power station, in a coal terminal at Thunder Bay and in the development of a rail system to move coal efficiently from the mines to Thunder Bay. To support this infrastructure and justify the investment in mine development, long term contracts were signed which expire in

Figure 2 **Coal Consumption in Ontario**


25 Million tonnes
20
15
10
5
1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982
Electricity generation
Use in iron and steel industry
Residential, commercial, industrial and transportation sales

Source: Statistics Canada

Table 1 **Electrical Power Generation in Ontario — Summary**

		Actuals					Est.**	Projections***			
		1970	1975	1980	1982	1983	1984	1985	1986	1987	1990
In-Service Capacity* (million kW)	Nuclear	.022	2.1	5.0	5.0	5.5	8.1	8.6	9.4	10.2	12.0
	Hydroelectric	5.9	6.2	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
	Fossil Fuel	6.3	8.8	10.6	10.1	10.1	10.3	10.3	10.3	10.3	10.3
Total		**12.2**	**17.1**	**22.1**	**21.6**	**22.1**	**24.9**	**25.4**	**26.2**	**27.0**	**28.8**
Generation (billion kW·h)	Nuclear	.12	11.3	35.6	34.8	38.3					
	Hydroelectric	35.7	35.1	36.7	34.5	36.6					
	Thermal	22.4	26.2	31.3	34.7	35.9					
Total		**58.2**	**72.6**	**103.6**	**104.0**	**110.8**					
Coal Purchases/ Requirements (million tonnes)	U.S. (Bituminous)	8.6	7.3	8.0	10.3	7.4	9.6				
	Western Canadian	0.0	0.0	2.2	2.9	2.9	4.0				
	B.C. (Bituminous)			0.6	0.6	0.6	0.9				
	Alberta (Bituminous)			1.6	1.5	1.4	1.8				
	Saskatchewan (Lignite)				0.8	0.9	1.3				
Total		**8.6**	**7.3**	**10.2**	**13.2**	**10.3**	**13.6**	**10.9**	**9.5**	**7.5**	**6.4**
Coal Contract Commitments (Minimum)							12.4	11.9	11.4	9.1	6.9

* Installed dependable capacity (December) minus capacity which is frozen or mothballed.

** Estimates assume earliest scheduled in-service date.

*** Projections are based on present construction without further mothballing of fossil fuel stations.

1992. Deliveries of western Canadian coal from the Luscar-Sterco (1977) Coal Valley Mine and from Byron Creek Collieries Corbin Mine in B.C. began in 1978 and from lignite mines in Saskatchewan in 1981. Coal supplied from western Canada since then is summarized in *Table 1*.

With the lower-than-expected growth in electricity demand in Ontario and the increasing availability of nuclear capacity, Ontario Hydro, in early 1983, found it necessary to negotiate reduced supply of coal from all of its suppliers including Luscar and Byron Creek. In return for payment of a take-or-pay penalty by Ontario Hydro, the western Canadian producers agreed to reduce volumes below contract minimums. Subsequent problems with the Pickering nuclear generating station and greater-than-expected demand, led Ontario Hydro to reinstate partially 1983 quantities. Coal purchases in 1984 were restored to the contract minimums and additional volumes were requested at prices more competitive with the spot market. Both Luscar and Byron Creek have concluded agreements with Ontario Hydro and will be supplying additional volumes during 1984. Ontario Hydro has also contracted with Union Oil to supply coal from its Obed Marsh coal project. The railways are understood to have agreed to transport the additional coal at a rate $2 to $3 below that for the long term contract.

The comparative costs and sulphur and heat contents of U.S. and western Canadian coals are shown in *Table 2*.

Future Coal Demand

The overall effect of reduced power demand and increased dependence on nuclear power generation will be to reduce significantly future coal demand *(Table 1)*. Despite the decision by Ontario Hydro to retube the Pickering Nuclear Generating Units 1 and 2, projected coal demand from 1985 to 1990 remains 0.5 to 1.9 million tonnes below contracted minimums. If Ontario Hydro purchases currently contracted volumes, western Canadian coal will increase to 50 to 55 per cent of total coal supply by 1990, a level expected to approach the technical limitations of Ontario Hydro's thermal generating stations. While substitution of low sulphur western Canadian coal could reduce the total sulphur emissions from thermal generating stations, increased use of western coal may require significant capital investment. Consequently, current volumes under long term contract appear to represent an upper bound on coal sales through the balance of the decade.

Several factors including unexpected load growth, future problems with existing nuclear capacity or delays in bringing new nuclear capacity on-stream can impact significantly on future coal demand. Opportunities for increased sales of western Canadian coal to Ontario Hydro will depend on the availability of a more competitive product. The low sulphur content of western Canadian coal is a distinct advantage but the less compatible combustion characteristics of western Canadian coals makes it difficult to substitute them for U.S. coal. The development of an upgraded coal product compatible with Ontario Hydro's generating stations, which can be supplied at a more competitive price, is necessary to enhance the sales of western Canadian coal.

Steel Production

Three primary steel companies operate in Ontario. Dofasco Ltd. and Stelco Ltd. are based in Hamilton, and Algoma Steel Ltd. is located at Sault Ste. Marie. Total steel production from the three companies in 1983 was 10.3 million tonnes with total coal purchases of 5.5 million tonnes, all obtained from U.S. sources. By year-end 1983, the industry had increased its use of existing capacity to 60 per cent but was still affected by the recession and lack of demand.

Both Stelco and Dofasco purchased metallurgical coal from Smoky River Coal (Grande Cache) during the 1970s until the delivered cost became uncompetitive. A major factor in the cost increases was transportation.

The two companies have different coal procurement strategies. Dofasco has a long term strategy predicated on a desire to be independent of fuels with regulated pricing, thus preferring coal to oil or natural gas. Dofasco also places some premium value on a stable Canadian coal supply but the current cost differential is considered too large. Stelco stated that western Canadian coal must be price competitive with U.S. coal.

Total 1984 coal consumption at Dofasco is estimated to be 2.4 million tonnes, of which 75 per cent is high-volatile metallurgical coal purchased on long term contract from non-affiliated mines. The remaining 0.6 million tonnes of low-volatile metallurgical coal is purchased on an annual basis from non-affiliated mines. Recent discussions have occurred regarding supply of some 200,000 tonnes of low-volatile coal from Smoky River Coals Ltd., but a cost differential in the order of $10/tonne compared to U.S. coal will have to be overcome.

1984 coal consumption at Stelco is estimated to be 3.2 million tonnes of which 60 per cent will be supplied from U.S. mines which are partially or completely owned by Stelco. The remaining 1.3 million tonnes is under long term contract from non-affiliated U.S. sources. Stelco maintains a 25 per cent interest in the Elk River, B.C. coal project, which is indefinitely suspended.

Algoma Steel acquires all of its coal from affiliated U.S. mines capable of producing 150 per cent of its coal requirements. No opportunities for western Canadian coal were identified at Algoma.

In addition to the use of metallurgical coal for coke production, both companies use considerable volumes of natural gas or oil. The potential to replace oil or natural gas injected into the blast furnaces with powdered coal has been considered by the companies. While current energy prices do not justify conversion, it can be effected within 24 months. Should conversion occur, the annual market potential appears to be in excess of 1 million

Table 2 **Cost/Quality Comparison — Western Canadian/U.S. Coals** Cost — 1982 $ (Cdn)/Tonne (U.S. Coal Equivalent)

	Average U.S. Coal*	Incremental U.S. Coal*	Low Sulphur U.S. Coal*	Average Western Canadian*	Saskatchewan Lignite**
Mine	51	48	58	45	25
Rail	10	10	10	40	36
Terminal	2	2	2	10	15
Marine	2	2	2	7	-
Total Cost	**65**	**62**	**72**	**102**	**76**
Sulphur content (%)***	2 - 2.5	2 - 2.5	0.85	0.3	0.87
Energy content BTU/pound	13,100	13,100	13,100	10,900	6,900

* @ Nanticoke
** @ Thunder Bay
*** U.S. Coal equivalent

Source: Ontario Hydro, November 1983

Table 3 **Industrial Coal Consumption in Ontario** ('000 tonnes)

	Company	Plant Location	1982	1983	Comments
Cement	Lake Ontario Cement	Picton	97	107	
	St. Lawrence Cement	Mississauga	75	94	
	St. Mary's Cement	Bowmanville	61	63	
		St. Mary's	19	27	
	Canada Cement	Woodstock	4	-	
		Bath	-	-	
	Federal White Cement	Woodstock	-	-	
Total			**256**	**291**	
Pulp and Paper	Great Lakes Paper	Thunder Bay	92	120	
	American Can	Marathon	56	72	
	Boise Cascade	Ft. Francis	46	53	western Canadian coal
	Abitibi Paper	Sturgeon Falls	30	-	
		Smooth Rock Falls	29	-	
		Thunder Bay	-	-	
	Spruce Falls	Kapuskasing	14	-	
	Dryden Paper	Dryden	42	36	western Canadian coal
	Lake Ontario Region		-	-	
	Lake Erie Region		-	-	
	Lake Huron/Georgian Bay Region		-	-	
	Lake Superior Region		-	-	
	Inland Ontario Region		-	-	
	Ottawa River Region		-	-	
Total			**309**	**281**	
Other	Algoma Steel	Wawa	-	91	
	General Motors	Oshawa	44	48	
	Steeley Industries	Hamilton	-	24	
	Cyanamide of Canada	Niagara	-	23	coke and coal
	Allied Chemical	Mississauga	22	13	
	Inco Metals	Sudbury	-	-	
Total			**66**	**199**	
Grand Total			**631**	**771**	

Source: EMR Canada, Coal Policy Branch

tonnes. Coal for such injection need not be coking quality; however, the ash and sulphur contents must be similar to metallurgical coal and a high-volatile content is required.

Other technical advances are taking place in the steel industry which will impact on both the quality and quantity of future coal requirements. The use of formed coke, produced from lower cost thermal coals, is being developed and the potential exists for use of subbituminous coal in facilities such as Stelco's direct reduction plant.

In summary, increased sales of metallurgical coal in the order of 200,000 tonnes per year could be realized if the current cost differential to U.S. coal could be reduced. Conversion of blast furnaces to powdered coal injection could create an additional market for coal in excess of 1 million tonnes/year, some portion of which could be obtained from western Canada. Further significant opportunities for western Canadian coal are likely to require development of specific coal products.

Other Industrial Activity

In addition to Ontario Hydro and the steel companies, the use of coal by other industries in Ontario totalled 631,000 tonnes in 1982 and 771,000 tonnes in 1983 as shown in *Table 3*. The major consumers of this coal are in cement or pulp and paper production at plants that either have not converted from oil to coal or did not remove their coal handling capability when they previously converted to oil.

Cement Industry

The Ontario cement industry is moving toward total conversion from oil or natural gas to coal. The last major plant to convert, Canada Cement at Bath, which was built in 1970 to burn oil, is currently converting to coal. Quality of coal used by the cement industry is not critical since both high sulphur and high ash can be directly absorbed in the product, often to advantage, but once a coal is selected, consistency from one shipment to the next becomes critical. Price of coal is the principle basis of selection. All of the coal used by the cement producers is supplied from the U.S., often from waste coal stockpiles, at highly competitive prices in the order of $2/million Btu. No market opportunity for western Canadian coal is expected from the Ontario cement producers.

Pulp and Paper Producers

The pulp and paper industry in Ontario consumes 14 per cent of the province's industrial energy. Oil accounts for 8 per cent of this consumption but the use of wood waste and natural gas is increasing and provides approximately 20 per cent and 65 per cent of total requirements respectively. Coal use in 1983 declined by 10 per cent from 1982 levels to 281,000 tonnes, representing 7 per cent of total fuel requirement.

Approximately one-third of the coal consumed in the pulp and paper industry is supplied from western Canada to plants in northwestern Ontario. The cost of U.S. coal supplied to this region of Ontario is estimated to be $65 (Cdn)/tonne. The potential for expanding sales of western Canadian coal to other producers will be dependent upon the relative costs of coal delivered to the plants and future environmental guidelines for acid forming emissions. One operator is converting from coal to natural gas, at a higher energy cost, to avoid possible problems with uncertain future environmental guidelines. The low-sulphur content of western Canadian coal is a benefit when environmental considerations are taken into account.

Other Users

Total coal consumption by other Ontario industrial users is in the range of 60,000 to 100,000 tonnes per year (if Algoma Steel consumption is excluded). All of this coal is supplied from U.S. mines. General Motors at Oshawa, using 50,000 tonnes per year, is the largest single customer purchasing coal for $55 (Cdn)/tonne at the mine. G.M. has requested bids from western Canadian coal producers but the coal specification appears to preclude an active response.

A number of reports produced in 1979 and 1980 identify certain coal markets in the general industrial sector but the potential in these markets remains unclear. Lack of coal storage and handling capability, incompatible boiler design, urban constraints and environmental concerns are serious limitations.

One opportunity for expanded coal demand in Ontario involves assessing the possibility of coal substitution in those industries currently using heavy fuel oil. Statistics Canada reports that 12 million cubic metres of heavy fuel oil, equivalent to 2 million tonnes of coal, were consumed by Ontario industry in the twelve months ending June 30, 1983. Coal/water mixtures may offer the near term potential to displace fuel oil in at least a portion of these installations and could be served by the present fuel oil infrastructure.

Factors Affecting Alberta Coal Sales to Ontario

Delivered Coal Cost

The Task Force was unable to determine precisely the cost premium for coal supplied from western Canada in comparison with coal from the U.S. Nevertheless, the trends shown in *Figure 3* indicate that the premium being paid by Ontario Hydro for western Canadian coal has increased since 1978 and is currently in the order of 50 to 60 per cent.

There are strong indications that additional sales of western Canadian coal, possibly in excess of 200,000 tonnes/year can be realized in the short-term if the cost of such coal delivered to central Canada can be reduced by $10 to $15/tonne. If this reduction is achieved, other new opportunities can be expected. The potential to realize such savings requires consideration of the ability of each element in the coal chain to contribute toward achievement of this goal. Its success will depend on several factors:

i) the belief that additional volumes of coal can be sold,

ii) the recognition that such sales cannot be realized unless the total costs can be reduced

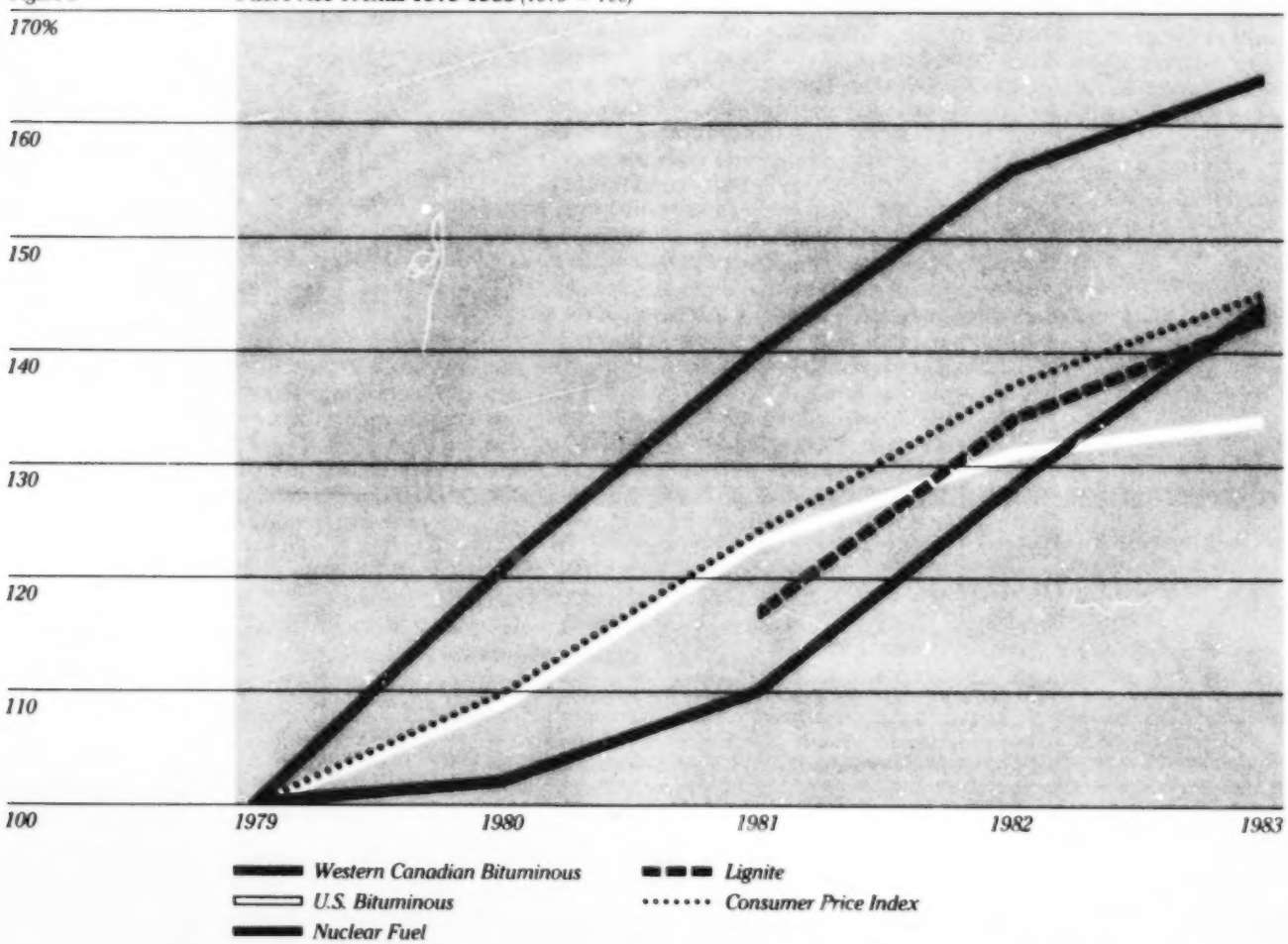
iii) better market opportunities do not exist, and

iv) any reduction in cost for new incremental sales will not impact negatively on each company's future revenue base.

If such cost savings can be realistically projected, it seems reasonable to expect renewed enthusiasm and expanded discussions will occur between the coal suppliers and potential customers.

The two major cost elements of western Canadian coal delivered to central Canada are production and transportation. Major efforts need to be directed toward further improvements in both of these areas. The potential for cost savings in these areas were considered but need further assessment.

Figure 3 ***Fuel Price Trends 1979-1983*** *(1979 = 100)*



The current commercial rates associated with transportation of coal to southern Ontario were determined to be in the range of $46/tonne. On the basis of transporting incremental volumes of coal to southern Ontario at a rate modestly above the out-of-pocket costs, potential savings in the order of $7.50 to $12/tonne might be possible *(Table 4)*. In addition, a price reduction on incremental volumes of coal production can increase the potential savings.

It is not clear to what extent the different companies involved in producing and transporting coal can reach, voluntarily, the compromises necessary to realize the potential cost savings. The possibility to assist this process needs to be considered.

Environmental Concerns

A major advantage of western Canadian coal over U.S. coal is its low sulphur content. Concern with acid depositions in environmentally sensitive areas of Canada may have a major impact on future combustion of coal. Ontario is becoming increasingly concerned with both the effect of acid deposition and control of the causes of this phenomena. Several years ago, Ontario Hydro agreed with the Ontario Ministry of Environment to reduce its SO_2 and NO_x allowable emissions to 450,000 tonnes per year as of 1986 and 300,000 tonnes per year as of 1990. These limits contrast with total emissions of approximately 460,000 tonnes in 1980, 530,000 in 1982 and 513,000 in 1983.

In the short term, Ontario Hydro is planning to achieve required emission reductions in several ways; primarily by maximizing the use of nuclear facilities, thereby replacing coal-fired stations, but also purchase of electricity from Quebec and Manitoba, installation of low NO_x burners and by use of low sulphur coal from the U.S. and western Canada.

The current problems with the Pickering Nuclear Generating station are resulting in a temporary increase in Hydro's total coal consumption. This may result in Ontario Hydro's 1984 emissions exceeding those for 1983 but it expects to meet its 1986 commitment. Unanticipated problems with its nuclear facilities or unpredicted increases in electricity demand may result in Ontario Hydro consuming more coal at a time when environmental requirements are becoming more stringent.

As a result of recent federal/provincial ministerial initiatives, the eastern provinces and the federal government have agreed to reduce total SO_2 and NO_x emissions to 50 per cent of 1980 allowable levels by 1994. The effect of this policy on future Ontario Hydro emission guidelines and those of other potential coal users is not yet clear. Among the coal consumers, several different approaches to meeting anticipated emission guidelines are being considered including fuel substitution, use of low sulphur coal, improved combustion systems and flue gas desulphurization.

An initial examination of the cost of flue gas desulphurization equipment on a 500 Mw coal-fired power generation unit, similar to that used by Ontario Hydro, indicates a capital cost in excess of $100 million and annual operating and maintenance costs in the order of $35 million. This equates to an incremental cost approaching $50/tonne of coal consumed which is significantly greater than the cost premium of low-sulphur western Canadian coal. Further assessment of this option merits consideration, particularly considering the swing role of coal-fired generating stations.

A major concern among current or potential coal users in the industrial sector is the effect of future environmental emission regulations. The risk that future requirements will require further control equipment at a significant cost is a major constraint limiting conversion to coal. Assurance of their ability to meet future environmental guidelines in a convenient and effective manner could go far to encourage conversion to coal.

Coal Quality and Technical Limitations

Most of the coal combustion facilities currently in place are designed to burn typical eastern U.S. coal. The generally lower energy and volatile content and higher ash levels of western Canadian coals can lead to boiler derating, flame instability and precipitator inefficiencies. Within limits, Ontario Hydro has overcome these problems at its Nanticoke Power station by the installation of an extensive coal blending capability. Even with this capability, the use of western Canadian coal is limited to the range of 50 to 60 per cent of the total coal burn for extended periods at this station. Neither the Lambton or Lakeview generating stations has coal blending capabili-

Table 4 **Cost of Coal Transportation to Ontario Hydro** *($/tonne)*

	Ontario Hydro Information	Current Commercial Rate	Potential Rate	Potential Savings**
Rail to Thunder Bay	*34.00*	*35.00*	*29.00 - 31.00*	*4.00 - 6.00*
Thunder Bay Terminal	*8.50**	*4.50*	*1.50 - 3.00*	*1.50 - 3.00*
Lake Transport	*6.00*	*6.50*	*3.50 - 4.50*	*2.00 - 3.00*
Total	***48.50***	***46.00***	***35.00 - 38.50***	***7.50 - 12.00***

* *Includes financing charge*

** *In comparison to current commercial rate*

ty, thus limiting the use of western Canadian coal. Expanded use of western Canadian coal in the Ontario Hydro system will require significant capital investment in blending facilities or the development of an upgraded coal product more compatible with the existing combustion facilities. The potential to produce an upgraded coal product at a more competitive delivered cost is highly attractive. Such a product should also have significant potential in the steel industry and the industrial market. The potential to develop and market other enhanced coal products such as formed coke, and combustible coal-water mixtures needs consideration.

U.S. Coal

The shorter transportation distances is a major advantage for U.S. coals in the Ontario market. Reserves of U.S. coal are enormous and the production capacity is the largest in the world. While coal provides 22 per cent of U.S. primary energy, export of coal is being aggressively pursued. No export constraints are expected in the future. While eastern U.S. coal is generally higher in sulphur, vast supplies of low-sulphur coal exist in the western U.S. that could become economically competitive with western Canadian coal as it is developed.

Conclusions

Current coal consumption in Ontario is approximately 20 million tonnes/year of which 20 per cent is supplied from western Canada. There are indications that additional volumes in the range of 200,000 to 500,000 tonnes could be realized in the short term if delivered costs can be reduced by $10 to $15/tonne. In the longer term, expanded sales will be enhanced by the development of upgraded coal products available at competitive prices. Opportunities appear to exist with Ontario Hydro, the steel producers and general industry.

The major constraints limiting these opportunities are the relative cost of western Canadian coal and the concern over future environmental regulations affecting emissions from coal-fired combustion facilities. The major advantage of western Canadian coal is its low sulphur content.

The first step toward realization of the potential opportunities for expanded use of western Canadian coal will require both coal producers and potential users to believe that a reasonable opportunity exists to supply a competitively priced product. High priority must be given to determining this potential. At least four alternatives exist, each of which should be pursued:

a) The economic benefit associated with the use of low sulphur western Canadian coal compared to alternatives such as the installation of flue gas desulphurization equipment should be determined in the light of future reductions of SO_2 and NO_x emissions,

b) The potential to reduce the price associated with each element of the coal chain, in return for greater volumes should be established,

c) The potential to replace heavy fuel oil with coal in various industrial users merits further investigation,

d) The potential to develop higher quality, competitively priced coal products for the Ontario market should be determined.

Recommendations

The Task Force has identified several initiatives to expand the use of western Canadian coal in Ontario and is recommending for consideration by the respective governments:

1. Alberta should consider the appointment of a Coal Development Adviser to work with other governments, the Alberta coal producers, the transportation companies, and present and potential users of Alberta coal, to further identify the factors limiting the expanded use of western Canadian coal in central Canada and the potential actions to overcome these limitations. Alternatives to be considered include those identified above. Ontario has agreed to co-operate with such an Adviser.
2. Alberta and Ontario should jointly invite interested parties to investigate the development of a commercial-scale coal combustion facility appropriate to industrial applications of coal which will demonstrate that coal can be burned in a convenient, economical, and environmentally safe manner.
3. Alberta should continue to encourage the development of upgraded, cost-competitive coal products, such as oil agglomerated coal, for particular market segments in Ontario.
4. Ontario should investigate the establishment of environmental guidelines and regulations relating specifically to the combustion of coal or coal products.
5. Alberta and Ontario, along with the Federal Government, should investigate the need for incentives to encourage the installation of air pollution control equipment on coal-burning facilities.

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